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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/627,018	07/25/2003	Hsueh Sung Tung	H0003777	3669

7590 10/27/2004
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EXAMINER

KEYS, ROSALYND ANN

ART UNIT PAPER NUMBER

1621

DATE MAILED: 10/27/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/627,018

Applicant(s)

TUNG ET AL.

Examiner

Rosalynd Keys

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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DETAILED ACTION

Status of Claims

1. Claims 1-26 are pending.

Claims 1-26 are rejected.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
4. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sievert et al. (US 6,329,559) alone or Manogue et al. (US 6,018,083) alone or Webster et al. (US 5,057,634) alone or in view of Miller et al. (US 6,211,135 B1) and Miller et al. (US 6,677,493 B1) and Lewis (Hawley's Condensed Chemical Dictionary, twelfth edition, 1993, page 616), for the reasons given in the previous office action, mailed May 12, 2004.

Response to Arguments

Sievert et al. (US 6,329,559)

5. Applicant's arguments filed August 10, 2004 have been fully considered but they are not persuasive. The Applicants argue that nowhere in Sievert et al. is there a suggestion of forming a mixture of CFC-216aa and CFC-217ba. Therefore, there is also no

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suggestion of the step of separating at least one of CFC-216aa and CFC-217ba from a mixture of CFC-216aa and CFC-217ba. The Examiner disagrees. In column 4, lines 57-65, Sievert et al. disclose step (a) wherein a precursor stream of at least one compound selected from halogenated propanes of the formula $CX_3CH_2CH_YX_{(3-Y)}$ and halogenated propenes of the formula $CX_3CH=CH_YX_{(2-Y)}$ are contacted with HF and chlorine (Cl_2) in a reaction zone for chlorofluorination. In column 5, line 60 to column 6, line 4, Sievert et al. disclose that examples of compounds that may be produced in the chlorofluorination reaction zone (a) include $CF_3CCl_2CF_3$ (CFC-216aa). In addition small amounts of other halogenated propanes may be formed having a higher degree of fluorination including $CF_3CClFCF_3$ (CFC-217ba). In column 6, lines 20 and 21, Sievert et al. disclose that the chlorofluorination of (a) is done in the presence of a fluorination catalyst. Further in column 6, lines 52-59, Sievert et al. disclose that in (b) of the process of the invention, the reaction zone effluent from (a) is distilled. The effluent from (a) is delivered to a distillation column to produce a low-boiling component (i) comprising HCl and when present $CF_3CClFCF_3$ (CFC-217ba). In column 7, lines 11-16, Sievert et al. disclose that a hydrogenation feed component (ii) is also produced from the distillation process of (b). This component typically includes HF and one or more other components including $CF_3CCl_2CF_3$ (CFC-216aa). Thus, there is a suggestion in Sievert et al. to form a mixture of CFC-216aa and CFC-217ba, i.e., effluent (a), and then separate at least one of CFC-216aa and CFC-217ba from a mixture of CFC-216aa and CFC-217ba, i.e., components (i) and (ii).

Manogue et al. (US 6,018,083)

6. Applicant's arguments filed August 10, 2004 have been fully considered but they are not persuasive. The Applicants argue that nowhere do Manogue et al. disclose or suggest the reaction of a mixture of at least two three-carbon reactants with an effective

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amount of chlorine and hydrogen fluoride in a reactor in the vapor phase and in the presence of a fluorination catalyst to form a product which comprises a mixture of CFC-216aa and CFC-217ba. The Examiner disagrees. In column 2, lines 39-55, Manogue et al. disclose combining effluent (100), which is comprised of 1,1,2-trichloro-3,3,3-trifluoropropene, chlorine, HF and HCl, with effluent (500), which is comprised of 2-chloro-1,1,1,2,3,3,3-heptafluoropropane, HCl and HF in reactor (200), which is packed with a catalyst comprising trivalent chromium and additional HF if required, to produce reactor effluent (200), which is comprised of HF, $C_3Cl_3F_5$, $C_3Cl_2F_6$ and C_3ClF_7 . the reactor effluent 200 is sent to a distillation column (300). The $C_3Cl_2F_6$ component is mainly comprised of $CF_3CCl_2CF_3$ (CFC-216aa) and the C_3ClF_7 component is mainly comprised of $CF_3CClF_2CF_3$ (CFC-217ba). A vapor phase reactor may be used (see column 2, lines 12-25).

Webster et al. (US 5,057,634)

7. Applicant's arguments filed August 10, 2004 have been fully considered but they are not persuasive. The Applicants argue that Webster et al. likewise, show a process whereby CFC-216aa or CFC-217ba may be made individually however, there is no showing of a mixture of CFC-216aa and CFC-217ba. Likewise there is no separation of at least one of CFC-216aa and CFC-217ba from a mixture of CFC-216aa and CFC-217ba. The Examiner disagrees. In column 1, line 66 to column 2, line 16, Webster et al. disclose that a major aspect of the invention is a first step vapor phase process for the chlorofluorination of a feed containing at least one of the class consisting of propane, propylene, and a partially halogenated three-carbon acyclic hydrocarbon with Cl_2 and HF to make one or more of the saturated, fluorine-containing perhalogenated intermediates, which include $CF_3CCl_2CF_3$ (CFC-216aa) and $CF_3CFClCF_3$ (CFC-217ba). The process is conducted at elevated temperatures, e.g., between 100°-550°C., in the presence of a solid metal-containing salt

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or oxide. Each of the above compounds A-F can be converted in an additional step or steps into hexafluoropropylene. In column 2, lines 62-65, Webster et al. disclose that product isolation can be conducted with either fractional distillation or partial condensation. In column 8, lines 41-47, Webster et al. teach that in addition to propane, propylene, recycled intermediate, and mixtures thereof, it is also possible to feed to the chlorofluorination reaction a partially halogenated three-carbon acyclic compound. As one example, 1,2-dichloropropane is readily available and can be used as the starting material, alone or with other feed materials specified above. Further, the temperature, pressure and contact time disclosed by Webster et al. are essentially the same as those disclosed in Applicants specification. Thus, one having ordinary skill in the art at the time the invention was made would reasonably believe that if Webster et al. utilize the same reactants under the same reaction conditions than Webster et al. would obtain the same reaction products.

Miller et al. (US 6,211,135 B1), Miller et al. (US 6,677,493 B1) and Lewis (Hawley's Condensed Chemical Dictionary, twelfth edition, 1993, page 616)

8. Applicant's arguments filed August 10, 2004 have been fully considered but they are not persuasive, for the reasons given in the previous office action, mailed May 12, 2004.

For the above reasons the Examiner believes that a prima facie case of obviousness has been shown. Thus, the rejection of claims 1-26 under 35 U.S.C. 103(a) as being unpatentable over Sievert et al. (US 6,329,559) alone or Manogue et al. (US 6,018,083) alone or Webster et al. (US 5,057,634) alone or in view of Miller et al. (US 6,211,135 B1) and Miller et al. (US 6,677,493 B1) and Lewis (Hawley's Condensed Chemical Dictionary, twelfth edition, 1993, page 616) is maintained.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rosalynd Keys whose telephone number is 571-272-0639. The examiner can normally be reached on M, R and F 3:00-8:00 pm and T-W 5:30-10:30 am.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter can be reached on 571-272-0646. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).


Rosalynd Keys
Primary Examiner
Art Unit 1621

October 26, 2004